UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

April 28, 2006

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the Bridgeport Rental and Oil Storage Superfund Site

FROM: David E. Cooper, Chair *(//s// David E. Cooper 4/28/06)*
National Remedy Review Board

TO: George Pavlou, Director
Emergency and Remedial Response Division
U.S. EPA Region 2

Purpose

The National Remedy Review Board (NRRB) has completed its review of the proposed cleanup action for the Bridgeport Rental and Oil Services (BROS) Superfund Site in Gloucester County, New Jersey. This memorandum documents the NRRB's advisory recommendations.

Context for NRRB Review

The Administrator announced the NRRB as one of the October 1995 Superfund Administrative Reforms to help control response costs and promote consistent and cost-effective decisions. The NRRB furthers these goals by providing a cross-regional, management-level, "real time" review of high cost proposed response actions prior to their being issued for public comment. The Board reviews all proposed cleanup actions that exceed its cost-based review criteria.

The NRRB evaluates the proposed actions for consistency with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and relevant Superfund policy and guidance. It focuses on the nature and complexity of the site; health and environmental risks; the range of alternatives that address site risks; the quality and reasonableness of the cost estimates for alternatives; regional, state/tribal, and other stakeholder opinions on the proposed actions, and any other relevant factors.

Generally, the NRRB makes advisory recommendations to the appropriate regional decision maker. The Region will then include these recommendations in the administrative record for the site, typically before it issues the proposed cleanup plan for public comment. While the Region is expected to give the Board's recommendations substantial weight, other important factors, such as subsequent public comment or technical analyses of response options, may influence the Region's final decision. The Board expects the Regional decision maker to respond in writing to its recommendations within a reasonable period of time, noting in particular how the recommendations influenced the proposed cleanup decision, including any effect on the estimated cost of the action. It is important to remember that the NRRB does not change the Agency's current delegations or alter in any way the public's role in site decisions.

Overview of the Proposed Action

The Bridgeport Rental and Oil Services (BROS) Superfund site is located just south of Cedar Swamp Road in Logan Township, Gloucester County, New Jersey. The 30-acre property was originally utilized as a sand mining operation before waste oil processing, storage and disposal activities began in the late 1960's. At one point, 100 tanks and process vessels were present on the BROS property along with a 13-acre lagoon (former sand mining pond) which brimmed with oily chemical wastes. A major breach in the waste oil lagoon occurred on one occasion in the early 1970's allowing oil to spread contaminants into the adjacent Little Timber Creek Swamp and Little Timber Creek. The use of sulfuric acid in the waste oil recovery process created a dense highly-contaminated fluid which migrated downward into the lower aquifer beneath the property. This material is a source of downgradient groundwater contamination and is considered one of the principal threat areas of the site. The site currently includes both the on-property area (where some residual contamination remains) and extensive off-property areas where sediment, light non-aqueous phase liquids (or LNAPLs -- i.e., oily liquids of various viscosities) and groundwater contamination have come to be located.

A large-scale cleanup utilizing on-site incineration has already been completed which removed much of the source materials on the site, including the large waste oil lagoon contaminated with polychlorinated biphenyls (PCBs) and other hazardous substances. The lagoon cleanup involved the on-site incineration of more than 172,000 tons of hazardous wastes, the treatment of almost 200 million gallons of wastewater, and the removal and disposal of over 5,200 drums. However, cleanup activities in the tank farm area, as well as two areas within the former lagoon, did not fully address all of the potential subsurface contamination. The groundwater (including LNAPLs floating on the water table), wetland sediments and residual materials in soils represent the remaining contaminated media at the site. The package considered by the Board included alternatives to address the following areas of contamination: wetlands, soils, LNAPLs, shallow groundwater, and deep groundwater. The associated Record of Decision for these media is the second and expected to be the final remedy decision for the BROS site.

NRRB Advisory Recommendations

The NRRB reviewed the information package describing this proposal and discussed related issues with Ronald Naman (Remedial Project Manager) on March 30, 2006. Based on this review and discussion, the Board offers the following comments:

1. In the package presented to the Board, broad remedial action objectives (RAOs) were mentioned; however, a number of them did not appear to be consistent with the NCP or EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final* (October 1988, EPA 540/G/89/004, OSWER 9355.3-01 (EPA 1988)). For example, the Region may want to refer to the EPA policy, stated in the NCP, to "expect to return usable ground waters to their beneficial uses wherever practicable, within a timeframe that is reasonable given the particular circumstances of the site." (40 CFR §300.430 (a)(1)(iii)(F)). Also, the package presented to the Board did not identify numerical cleanup levels for on-property areas. The Board recommends that the Region develop RAOs and cleanup goals that are consistent with EPA regulation and guidance for all areas, and include them in the decision documents for the site. As explained in RI/FS guidance (EPA, 1988), generally cleanup levels should be based on applicable or relevant and appropriate requirements or risk assessment.

2. The Board recognizes that there is a significant degree of uncertainty associated with the effectiveness of the preferred alternative. For example, the package presented to the Board did not provide information on the effectiveness of bioslurping for soil hot spots and LNAPL areas. As a result of these uncertainties, the Region prefers an adaptive management approach to site remediation. Toward this end, the Board recommends that the Region establish clear decision criteria for implementing sequential or contingency remedies in its use of this approach. Also, based on the information presented to it, the Board notes that there does not appear to be enough information available at this time to determine the appropriateness of a Technical Impracticability (TI) waiver for portions of the site (e.g., on-property areas). Consequently, the Region may want to consider the option of issuing an interim, rather than a final Record of Decision.

3. PCBs are a significant contaminant of concern in some media and areas of the site. In the material presented to the Board, the 1998 PCB mega-rule is cited. However, it appears that aspects of this rule may be incorrectly applied at this site. For example, the 50 ppm PCB cleanup level for the *de manifestis* area of the wetlands appears to be inconsistent with the mega-rule. Also, the criteria for disposal in a municipal landfill outlined in the package appear to be incorrect. The Board recommends that the Region examine the proposed remedy to ensure that the Toxic Substances Control Act PCB remediation waste regulations are correctly applied.

4. The treatability study results for the wetland sediments were summarized in the package presented to the Board. The sediments were treated with 20 percent by weight cement kiln dust; on average, the PCB concentrations appear to be reduced by two-thirds. The

Board recommends that when evaluating this or other treatment of PCB-contaminated media at the site, the Region consider conducting a mass balance on the PCBs.

5. The Board notes that the Ecological Risk Assessment for the wetlands area does not appear to have followed the appropriate Superfund guidance: *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* - Interim Final, June 1997, EPA 540-R-97-006. Specifically, the ecological site conceptual model is incomplete, as presented to the Board, and does not effectively link contaminants to actual or potential ecological receptors. Consequently, the Board could not correlate sediment contaminant levels to exposure estimates. The Board recommends that the Region describe those ecological receptors to be protected and the relevant ecological end points and measures of exposure or measures of effect, consistent with *Ecological Risk Assessment Guidance for Superfund* (EPA, 1997), cited above.

6. The package presented to the Board did not include numerical, risk-based ecological remediation goals that are normally developed during an RI/FS. The Board notes that the preferred alternative includes the removal of contamination from a portion of the wetlands area impacted by a previous breach in the waste oil lagoon. However, no risk assessment information was presented for this area. Rather, the ecological risk assessment evaluated relatively uncontaminated areas and did not develop any cleanup levels for the most heavily contaminated areas. As a result, the Board was unable to discern the contaminant remedial goals within the wetlands area and could not evaluate estimated reduction in risk associated with the proposed action. The Board recommends that the Region develop a range of remediation goals based on an ecological risk assessment. This approach would help ensure that the wetlands remediation achieves the Region's remedial action objectives.

7. The Board notes that the human health baseline risk assessment presented as part of the "Soils, LNAPL, and Shallow/Deep Ground Water" package does not follow EPA risk assessment guidance. For example, the risk assessment assumes that institutional controls are in place and effective. The Board acknowledges that this action follows several previous actions at this site and that this risk assessment is not being used as the justification for taking remedial action. The Board recommends that the Region ensure that the decision documents explain how the approach taken in this action results in a protective remedy. In addition, the Board notes that residential land use assumptions were used to evaluate the vapor intrusion pathway, which may be very conservative depending upon the future land use at the BROS site.

8. The Board recommends that the Region develop an alternative that provides protection of human health and the environment primarily through containment. This alternative might be useful as a stand-alone alternative or as a contingency in case the innovative treatment alternatives considered as part of the preferred remedy are less effective than desired. The Board also recommends that a contingency plan be developed which may be implemented if necessary.

9. The Board recommends that the Region include in the site decision documents an explanation of the goals of the mass removal pump & treat action and the in-situ chemical oxidation (ISCO) action in the "principal threat zone" (PTZ), including the rationale for their implementation and for the sequence in which they are applied.

10. The preferred remedy in the package presented to the Board includes the injection of hydrogen peroxide (H_2O_2) as a method of ISCO to remediate organic contaminants in the deep groundwater PTZ. Based on the experience of the EPA Office of Research and Development's Ground Water Technical Support Center, there may be a number of issues associated with this technology that make it difficult to deploy in this context and make its results highly unpredictable. The package presented to the Board lacked sufficient information (i.e., treatability study details) to allow a satisfactory review of the application of this technology at this site by the Board. The Board recommends that the merits of H_2O_2 injection, and the advantages and limitations of ISCO using other oxidants (e.g., permanganate), be re-evaluated.

11. The information package provided to the Board reports that aerobic biostimulation tests resulted in a 91 to 98 percent removal of volatile organic compounds (VOCs). The package also states that anaerobic biostimulation had minimal impact on the contaminants of concern. However, many studies show that chlorinated ethanes and ethenes generally are more vulnerable to reductive dechlorination under anaerobic conditions than biodegradation under aerobic conditions, which is contrary to what was reported in the package presented to the Board. The Board recommends that the Region re-evaluate the type of biostimulation (aerobic vs. anaerobic) and the resulting degradation rates being considered for this site.

12. The cost information provided to the Board uses a discount rate of five percent, which is inconsistent with EPA's guidance for cost estimating during the Feasibility Study (EPA 540-R-00-002; OSWER 9355.0-75). The Board recommends that the cost information reflect the seven percent discount rate indicated in the above-noted guidance.

13. The Board notes that there does not appear to have been a great deal of involvement by Federal or State natural resource trustees at this site. Because the cleanup includes significant work in wetlands, the Board recommends that potential trustee concerns be identified.

The NRRB appreciates the Region's efforts in working together with the potentially responsible parties, state, and community groups at this site. We request that a draft response to these findings be included with the draft Proposed Plan when it is forwarded to your OSRTI Regional Support Branch for review. The Regional Support Branch will work with both me and your staff to resolve any remaining issues prior to your release of the Proposed Plan. Once your response is final and made part of the site's Administrative Record, then a copy of this letter and your response will be posted on the NRRB website.

Thank you for your support and the support of your managers and staff in preparing for this review. Please call me at (703) 603-8763 should you have any questions.

cc: M. Cook (OSRTI)
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